查询4N22供应商

| | | |
|---|---|---|
| ***4N22***<br>***4N23***<br>***4N24*** | **JAN, JANTX, JANTXV, SINGLE CHANNEL OPTOCOUPLERS** | ***Mii***<br>**OPTOELECTRONIC PRODUCTS DIVISION** |

**Features:**

- Overall current gain...1.5 typical (4N24)
- Base lead provided for conventional transistor biasing
- Rugged package
- High gain, high voltage transistor
- +1kV electrical isolation

**Applications:**

- Eliminate ground loops
- Level shifting
- Line receiver
- Switching power supplies
- Motor control

## DESCRIPTION

Gallium Aluminum Arsenide (GaAlAs) infrared LED and a high gain N-P-N silicon phototransistor packaged in a hermetically sealed metal case. The ***4N22***, ***4N23*** and ***4N24***'s can be tested to customer specifications, as well as to MIL-PRF-19500 JAN, JANS, JANTX and JANTXV quality levels.

## *ABSOLUTE MAXIMUM RATINGS

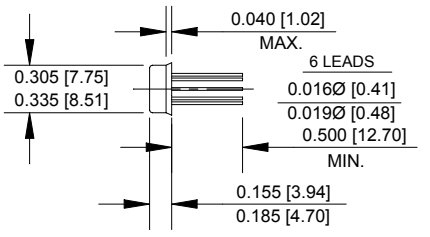
| | |
|---|---|
| Input to Output Voltage | ±1kV |
| Emitter-Collector Voltage | 4V |
| Collector-Emitter Voltage ($V_{CEO}$, $I_F = 0$) | 35V |
| Collector-Base Voltage ($V_{CEO}$, $I_F = 0$) | 35V |
| Reverse Input Voltage | 2V |
| Input Diode Continuous Forward Current at (or below) 65°C Free-Air Temperature (see note 1) | 40mA |
| Peak Forward Input Current (Value applies for tw ≤ 1μs PRR < 300 pps) | 1A |
| Continuous Collector Current | 50mA |
| Continuous Transistor Power Dissipation at (or below) 25°C Free-Air Temperature (see Note 2) | 300mW |
| Storage Temperature | -65°C to +125°C |
| Operating Free-Air Temperature Range | -55°C to +125°C |
| Lead Solder Temperature (1/16" (1.6mm) from case for 10 seconds) | 240°C |

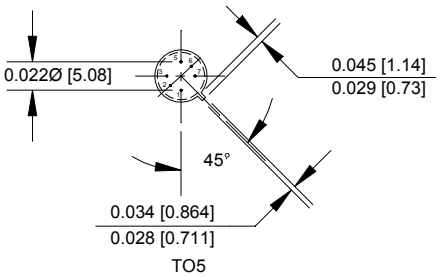
**Notes:**

1. Derate linearly to 125°C free-air temperature at the rate of 0.67 mA/°C above 65°C.
2. Derate linearly to 125°C free-air temperature at the rate of 5 mW/°C above 65°C.

* JEDEC registered data

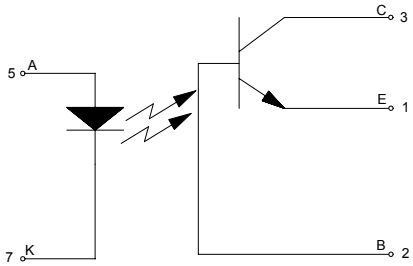
**Package Dimensions**




NOTE: ALL LINEAR DIMENSIONS ARE IN INCHES (MILLIMETERS)

**Schematic Diagram**



***ELECTRICAL CHARACTERISTICS INPUT LED** $T_A = 25^{\circ}C$ Unless otherwise specified

| PARAMETER | | SYMBOL | MIN | MAX | UNITS | TEST CONDITIONS | NOTE |
|---|---|---|---|---|---|---|---|
| Input Diode Static Reverse Current | | $I_R$ | | 100 | µA | $V_R$ = 2V | |
| Input Diode Static Forward Voltage | -55°C | $V_F$ | 1 | 1.5 | V | $I_F$ = 10mA | |
| | +25°C | | 0.8 | 1.3 | | | |
| | +125°C | | 0.7 | 1.2 | | | |

***OUTPUT TRANSISTOR** $T_A = 25^{\circ}C$ Unless otherwise specified

| PARAMETER | SYMBOL | MIN | MAX | UNITS | TEST CONDITIONS | NOTE |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 35 | | V | $I_C$ = 100µA, $I_B$ = 0, $I_F$ = 0 | |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 35 | | V | $I_C$ = 1mA, $I_B$ = 0, $I_F$ = 0 | |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 4 | | V | $I_C$ = 0, $I_E$ = 100µA, $I_F$ = 0 | |

***COUPLED CHARACTERISTICS** $T_A = 25^{\circ}C$ Unless otherwise specified

| PARAMETER | | SYMBOL | MIN | MAX | UNITS | TEST CONDITIONS | NOTE |
|---|---|---|---|---|---|---|---|
| On State Collector Current | 4N22 | $I_{C(ON)}$ | 0.15 | | mA | $V_{CE}$ = 5V, $I_B$ = 0, $I_F$ = 2mA | |
| | 4N23 | | 0.2 | | | | |
| | 4N24 | | 0.4 | | | | |
| On State Collector Current | 4N22 | $I_{C(ON)}$ | 2.5 | | mA | $V_{CE}$ = 5V, $I_B$ = 0, $I_F$ = 10mA | |
| | 4N23 | | 6 | | | | |
| | 4N24 | | 10 | | | | |
| On State Collector Current -55°C | 4N22 | $I_{C(ON)}$ | 1 | | mA | $V_{CE}$ = 5V, $I_B$ = 0, $I_F$ = 10mA | |
| | 4N23 | | 2.5 | | | | |
| | 4N24 | | 4 | | | | |
| On State Collector Current +100°C | 4N22 | $I_{C(ON)}$ | 1 | | mA | $V_{CE}$ = 5V, $I_B$ = 0, $I_F$ = 10mA | |
| | 4N23 | | 2.5 | | | | |
| | 4N24 | | 4 | | | | |
| Off State Collector Current +25°C | | $I_{C(OFF)}$ | | 100 | nA | $V_{CE}$ = 20V, $I_B$ = 0, $I_F$ = 0mA | |
| Off State Collector Current +100°C | | $I_{C(OFF)}$ | | 100 | µA | $V_{CE}$ = 20V, $I_B$ = 0, $I_F$ = 0mA | |
| Collector-Emitter Saturation Voltage | 4N22 | $V_{CE(SAT)}$ | | 0.3 | V | $I_C$ = 2.5mA, $I_B$ = 0, $I_F$ = 20mA | |
| | 4N23 | $V_{CE(SAT)}$ | | 0.3 | V | $I_C$ = 5mA, $I_B$ = 0, $I_F$ = 20mA | |
| | 4N24 | $V_{CE(SAT)}$ | | 0.3 | V | $I_C$ = 10mA, $I_B$ = 0, $I_F$ = 20mA | |
| Input to Output Resistance | ALL | $R_{I-O}$ | $10^{11}$ | | | $V_{IN-OUT}$ = 1kV | 1 |
| Input to Output Capacitance | ALL | $C_{I-O}$ | | 5 | pF | F = 1MHz, $V_{IN-OUT}$ = 1kV | 1 |
| Rise Time | 4N22 | $t_r$ | | 15 | µs | $V_{CC}$ = 10V, $I_F$ = 10mA, $R_L$ = 100Ω | |
| | 4N23 | $t_r$ | | 15 | µs | | |
| | 4N24 | $t_r$ | | 20 | µs | | |
| Fall Time | 4N22 | $t_f$ | | 15 | µs | $V_{CC}$ = 10V, $I_F$ = 10mA, $R_L$ = 100Ω | |
| | 4N23 | $t_f$ | | 15 | µs | | |
| | 4N24 | $t_f$ | | 20 | µs | | |

**NOTES:**

1. These parameters are measured between all phototransistor leads shorted together and with both input diode leads shorted together.



**RECOMMENDED OPERATING CONDITIONS:**

MICROPAC INDUSTRIES, INC. OPTOELECTRONIC PRODUCTS DIVISION • 725 E. Walnut St., Garland, TX 75040 • (972) 272-3571 • Fax (972) 487-6918
www.micropac.com E-MAIL: optosales@micropac.com

| PARAMETER | SYMBOL | MIN | MAX | UNITS |
|---|---|---|---|---|
| Input Current, Low Level | $I_{FL}$ | 0 | 1 | μA |
| Input Current, High Level | $I_{FH}$ | 2 | 10 | mA |
| Supply Voltage | $V_{CE}$ | 5 | 10 | V |

## SELECTION GUIDE

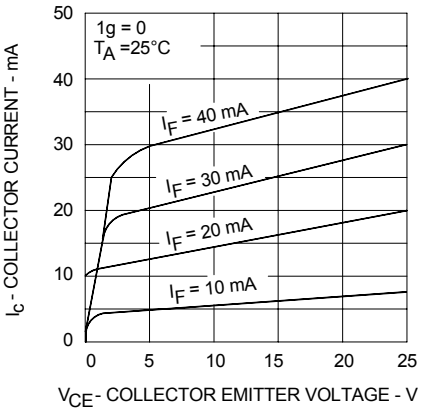
| PART NUMBER | PART DESCRIPTION |
|---|---|
| JAN4N22 | 4N22 Optocoupler, JAN Screening level |
| JAN4N23 | 4N23 Optocoupler, JAN Screening level |
| JAN4N24 | 4N24 Optocoupler, JAN Screening level |
| JANTX4N22 | 4N22 Optocoupler, JANTX Screening level |
| JANTX4N23 | 4N23 Optocoupler, JANTX Screening level |
| JANTX4N24 | 4N24 Optocoupler, JANTX Screening level |
| JANTXV4N22 | 4N22 Optocoupler, JANTXV Screening level |
| JANTXV4N23 | 4N23 Optocoupler, JANTXV Screening level |
| JANTXV4N24 | 4N24 Optocoupler, JANTXV Screening level |

* JEDEC registered data

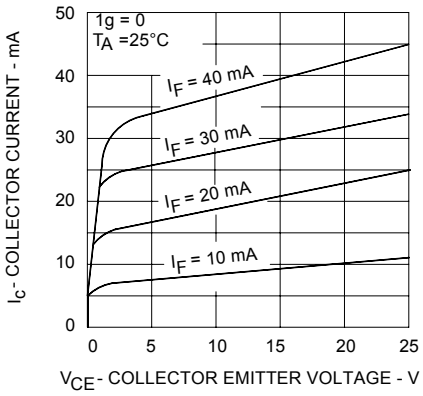
## THESE CHARTS APPLY TO:

| | | |
|---|---|---|
| ***4N22, 4N23, and 4N24*** | **JAN, JANTX, JANTXV, OPTOCOUPLERS** | Page |
| ***4N22A, 4N23A, and 4N24A*** | **JAN, JANTX, JANTXV, OPTOCOUPLERS** | Page |
| ***4N22U, 4N23U, and 4N24U*** | **JAN, JANTX, JANTXV, OPTOCOUPLERS** | Page |

**4N22**
**COLLECTOR CURRENT**
**VS**
**COLLECTOR-EMITTER VOLTAGE**




**4N23**
**COLLECTOR CURRENT**
**VS**
**COLLECTOR-EMITTER VOLTAGE**




**4N24**
**COLLECTOR CURRENT**
**VS**
**COLLECTOR-EMITTER VOLTAGE**